

**Claims**

1. A method for the thermal treatment of granular solids in a reactor (1) with a swirl chamber (4), which in particular constitutes an flash reactor or suspension reactor, wherein microwave radiation from a microwave source (2) is fed into the reactor (1) through a wave guide, **characterized in that** the wave guide constitutes a gas supply tube (3) and that through the gas supply tube (3) a gas stream is additionally fed into the swirl chamber (4).  
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- 10 2. The method as claimed in claim 1, **characterized in that** the gas stream introduced through the gas supply tube (3) is utilized for an additional fluidization of the fluidized bed formed in the swirl chamber (4).
- 15 3. The method as claimed in any of claims 1 or 2, **characterized in that** by means of the gas stream introduced into the gas supply tube (3) solid deposits in the gas supply tube (3) are avoided.
- 20 4. The method as claimed in any of the preceding claims, **characterized in that** the used frequency of the microwave radiation lies between 300 MHz and 30 GHz, preferably at the frequencies 435 MHz, 915 MHz and 2.45 GHz.
- 25 5. The method as claimed in any of the preceding claims, **characterized in that** the temperatures in the reactor (1) lie between 150°C and 1200°C.
6. A plant for the thermal treatment of granular solids, in particular for performing the method as claimed in any of claims 1 to 5, comprising a reactor (1) with swirl chamber (4), which in particular constitutes an flash reactor or suspension reactor, a microwave source (2) disposed outside the reactor (1), and a wave guide for feeding microwave radiation into the reactor (1), **characterized**

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**in that** the wave guide constitutes a gas supply tube (3) through which a gas stream can additionally be fed into the swirl chamber (4).

7. The plant as claimed in claim 6, **characterized in that** the gas supply

5 tube (3) has a rectangular or round cross-section whose dimensions are adjusted in particular to the used frequency of the microwave radiation.

8. The plant as claimed in claim 6 or 7, **characterized in that** the gas supply tube (3) has a length of 0.1 m to 10 m.